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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/586,530	05/31/2000	Tuqiang Ni	LAM2P282	6020

25920 7590 06/12/2002

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EXAMINER

PEREZ RAMOS, VANESSA

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 06/12/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

T.D

Office Action Summary	Application No.	Applicant(s)	
	09/586,530	NI ET AL.	
	Examiner	Art Unit	
	Vanessa Perez-Ramos	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, "estimating an etchpoint" and "detecting a last intensity maximum...prior to the estimated etchpoint" are vague and indefinite. The Examiner closely examined Applicant's specification, and there is no indication of any numerical value for said "estimated" etchpoint, which makes it completely subjective, and, therefore, indefinite.

In claims 7 and 14, "...at a point an interval later than the intensity maximum..." is vague and indefinite.

In claim 8, "having an approximate initial thickness", "approximating an etch rate from a time interval..." and "detecting...prior to the estimated etch endpoint" are vague and indefinite. The Examiner closely examined Applicant's specification, and there is no indication of any numerical value for said "estimated" etchpoint, which makes it completely subjective, and, therefore, indefinite. The same holds true for the "approximate initial thickness" and the "approximate" etch rate.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Litvak (U.S. 5,499,733) in view of Chao et al. (U.S. 5,780,315).

In regard to claims 1 and 6-7, Litvak discloses a method for determining an etchpoint, comprising: directing radiant energy at two or more wavelengths onto the layer to be etched (col. 8, lines 18-20); and detecting the endpoint based on an analysis of signals emitted vs. wavelength (col. 12, lines 45-67).

Litvak does not disclose detecting intensity maximums reflected at various wavelengths in relation to "estimated endpoints". However, as noted above, it is the Examiner's position that Applicant's "estimated etchpoint" is vague as there is no indication of how it is estimated, or what its value might be.

Regarding the intensity maximums, Chao discloses an endpoint detecting method based on the measurement of maximum intensities (col. 5, lines 6-10).

It is the Examiner's position that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Litvak by detecting intensity maximums, as per Chao, because this is a well known step in the art, as evidenced by Chao's disclosure.

In regard to claim 2, the variation of process parameters such as the wavelength would have been obvious to one skilled in the art at the time of the invention with the anticipation of determining the best process mode.

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In regard to claim 3, Litvak discloses that at least two interference maxima occur (col. 8, lines 19-20).

In regard to claims 4-5, Litvak discloses the use of transparent materials (col. 7, lines 48-50).

In regard to claims 8-14, these claims differ from claims 1-7 above by utilizing three or more wavelengths. Litvak discloses a process where "various" wavelengths are detected (col. 12, lines 63-64), which reads on Applicant's "three or more".

Response to Arguments

5. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Perez-Ramos whose telephone number is 703-306-5510. The examiner can normally be reached on Mon-Fri 8:30am-5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on 703-308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7718 for regular communications and 703-305-3599 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5665.

Vanessa Perez-Ramos
Examiner
Art Unit 1765

VPR
June 6, 2002


BENJAMIN L. UTECH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700